REQUEST FOR RECONSIDERATION

Claims 2 and 7-11 remain active in this application.

The claimed invention is directed to a thermoplastic resin suitable for a molding material for an automotive exterior part and provides a thermoplastic resin composition comprising 50-85 wt. % of a reinforced acrylic rubber [A], 3-25 wt. % of a diene rubber [B], 5-40 wt. % of a copolymer of a vinyl monomer having a bonded vinyl content of 30 to 50 mass% [D] and 5-25 wt. % of a copolymer of a vinyl monomer having a bonded vinyl content of less than 30 mass% [E]. Applicants have discovered such a combination to provide for excellent dimensional accuracy of molded articles due to excellent coating property, weather resistance, peeling property and flexibility as well as a small linear expansion coefficient. Such a composition is nowhere disclosed or suggested in the cited art of record.

The rejections of claims 2 and 7-11 under 35 U.S.C. §103(a) over Miyajima et al. and of claims 2, 7 and 9-11 under 35 U.S.C. §103(a) over Kamoshita et al. are respectfully traversed.

None of the cited references disclose or suggest the claimed combination of 50-85 wt. % of [A] a grafted acrylic rubber, 3-25 wt. % of [B] a grafted diene rubber, [D] vinyl copolymer with 30-50 mass% of bonded vinyl cyanide and [E] vinyl copolymer with vinyl cyanide in an amount of less than 30 mass%.

Miyajima et al. describes a rubber-modified thermoplastic resin comprising 50-85 wt. % of a rubbery polymer (a) modified with 5-48 wt. % of an aromatic vinyl compound (b) and 2-45 wt. % of a vinyl cyanide compound (c). The rubbery polymer is broadly described as follows:

> The rubbery polymer used as the component (a) in this invention includes, for example, **polybutadiene**, polyisoprene, **styrene-butadiene copolymer** (preferably having a styrene content of 5 to 60% by weight), styrene-isoprene copolymer, **acrylonitrile-butadiene** copolymer, ethylene-α-olefin copolymer, ethylene-α-olefin-

> polyene copolymer, **acrylic rubber**, **butadiene-(meth)acrylic acid ester copolymer**, **styrene-butadiene block copolymer**, styrene-isoprene block copolymer, hydrogenated styrene-butadiene block copolymer, hydrogenated butadiene polymer, ethylenic ionomer and the like. The styrene-butadiene block copolymer and styrene-isoprene block copolymer include those having a structure of the AB type, the ABA type, the taper type and the radial teleblock type. In addition, the hydrogenated butadiene polymer includes not only hydrogenation products of the above block copolymers but also hydrogenation products of block copolymers consisting of polystyrene block and styrene-butadiene random copolymer block, hydrogenation products of polymers consisting of polybutadiene block having a 1,2-vinyl content of 20% by weight or less and polybutadiene block having a 1,2-vinyl content of more than 20% by weight, etc. These rubbery polymers are used **alone or in admixture of two or more**. (column 2, lines 44-67 emphasis added)

Thus, within the context of rubbery polymers, butadiene rubbers and acrylic rubbers are allowed as well as mixtures of rubbers. However, there is no disclosure of 50-85 wt.% of a reinforced acrylic rubber and 3-25 wt. % of a reinforced diene rubber. Accordingly, Miyajima et al. could not suggest a high flexural modulus and low coefficient of linear expansion with good coating and peel properties resulting therefrom.

In contrast, the claimed invention is directed to a thermoplastic resin composition comprising 50-85 wt. % of **a reinforced acrylic rubber** [A], 3-25 wt. % of **a reinforced diene rubber** [B], 5-40 wt. % of a copolymer of a vinyl monomer having a bonded vinyl content of 30 to 50 mass% [D] and 5-25 wt. % of a copolymer of a vinyl monomer having a bonded vinyl content of less than 30 mass% [E].

Applicants have discovered an enhanced performance evaluation resulting from the combination of 50-85 wt. % of reinforced acrylic rubber and 3-25 wt. % of reinforced diene rubber.

The examiner's attention is directed to the data appearing on page 34, Table 1 of applicants' specification in which the performance of various rubber compositions is reported. For the examiners' convenience a portion of the data from Table 1 is reproduced below:

TABLE 1

			Example			Comparative Example			
			1	2	3	1	2	3	4
Content	Component [A]	Mass %	70	65	70	35	25	45	45
	Component [B]	Mass %	10	0	10	45	10	15	15
	Component [D]	Mass %	20	35	10	20	65	0	3
	Component [E]	Mass %	0	0	10	0	0	40	47
	Rubber content in composition	Mass %	27	21	27	34	13	22	22
	Bonded vinyl cyanide content in acetone-soluble fraction	Mass %	33	35	31	33	38	26	26
Performance Evaluation		Units							
	Flexural modulus	MPa	1780	2130	1750	1310	2590	2090	2120
	Coefficient of linear expansion	$\times 10^{-5}$/° C.	9.0	8.6	9.0	12.6	8.1	11.4	10.5
	Coating properties		◎	○	○	○	○	X	X
	Peel properties		○	○	○	○	X	X	X

Comparative examples 1-4 all contained less than 50 wt. % of acrylic rubber and each exhibited a decrease in performance of at least one of flexural modulus, coefficient of linear expansion, coating property or peel property.

In particular comparative example 1 had a decreased flexural modulus and increased coefficient of linear expansion when the content of acrylic rubber was only 35 wt.% and the content of diene rubber was 45 wt.%, in excess of the claimed 25 wt. %.

Comparative example 2 had decreased peel properties when the acrylic rubber content was only 25 wt.%, the vinyl copolymer having a vinyl cyanide content of 30-50 mass% was 65 wt. %, in excess of the claimed 40 wt. % maximum and the content of vinyl copolymer having a vinyl cyanide content of less than 30 mass % was 0, below the claimed 5-25 wt. %.

Comparative example 3 had increased coefficient of linear expansion, decreased coating and decreased peel properties when the acrylic rubber content was only 45 wt.%, the vinyl copolymer having a vinyl cyanide content of 30-50 mass % was 0 wt. %, below the claimed 5 wt. % minimum and the content of vinyl copolymer having a vinyl cyanide content of less than 30 mass% was 40 wt. %, in excess of the claimed maximum of 25 wt. %.

Comparative example 4 had increased coefficient of linear expansion, decreased coating and decreased peel properties when the acrylic rubber content was only 45 wt.%, the vinyl copolymer having a vinyl cyanide content of 30-50 mass % was 3 wt. %, below the

claimed 5 wt. % minimum and the content of vinyl copolymer having a vinyl cyanide content of less than 30 mass % was 47 wt. %, in excess of the claimed maximum of 25 wt. %.

In contrast, example 3 in which the content of acrylic rubber was 70 wt.%, the content of diene rubber was 10 wt. %, the content of vinyl copolymer having a vinyl cyanide content of 30-50 mass % was 10 wt. % and the content of vinyl copolymer having a vinyl cyanide content of less than 30 mass % was 10 wt. % demonstrated high flexural modulus and low coefficient of linear expansion which maintaining good coating and peel properties.

Since Miyajima et al fail to describe the claim limitation of 50-85 wt. % of reinforced acrylic rubber and 3-25 wt.% of diene rubber there can be no suggestion of the enhanced performance resulting from such a combination. Further, the claimed invention achieves excellent flexibility, while Miyajima et al. report a high flexural modulus (see Table 2). The technical findings relating to flexibility, coating property, weather resistance, peeling property and dimensional accuracy are not suggested by Miyajima et al. and as such does not suggest the necessity for solving the problems and the technical means for solving the problems of the claimed invention. As such the claimed invention would not have been obvious and withdrawal of the rejection under 35 U.S.C. 103(a) is respectfully requested.

Kamoshita et al. describes a thermoplastic for an internal box of a refrigerator having excellent flon resistance. The composition contains 5-100 wt. % of (A) an acrylic rubber graft copolymer, 0-80 wt. % of (B) a diene rubber graft copolymer and 0-85 wt. % of (C) a vinyl copolymer of **45**-75 wt. % vinyl cyanide (column 2, line 56 through column 3, line 5). There is no disclosure or suggestion of a vinyl copolymer having a bonded vinyl cyanide content of less than 30 mass %. By describing their vinyl copolymer as having **45-75** wt. % of vinyl cyanide, there would be no motivation to include a vinyl copolymer in which the bonded vinyl cyanide content was **less than 30 mass%**.

In contrast, the claimed invention is directed to a resin composition in which a content of vinyl copolymer having a bonded vinyl cyanide content of less than 30 mass %, is from 5 to 25 mass %.

While the examiner has cited to comparative examples C-4 and C-6 as compositions in which the vinyl cyanide content is below 30 wt. %, applicants note that each of these examples are **comparative** examples which are demonstrated to **provide poor resistance** to strain in an atmosphere of refrigerants and accordingly would not be looked to as a basis to modify any further compositions. To the contrary, the decreased performance of compositions in which the vinyl cyanide content of a copolymer component was <30 wt.% would teach away from using a copolymer in which the vinyl cyanide content was <30 wt. %.

The claimed invention achieves the effect of excellent dimensional accuracy of molded articles, due to the excellent coating property, weather resistance, peeling property and flexibility as well as having a small linear expansion coefficient (see page 7-8 of applicants' specification). Kamoshita et al. provides a resin composition capable of forming a refrigerator inner case which is excellent in Freon resistance. Therefore, Kamoshita et al differs from the claimed invention in terms of the problem solved and therefore can not suggest the effects of the claimed invention. The technical findings relating to flexibility, coating property, weather resistance, peeling property and dimensional accuracy are not suggested by Kamoshita et al. and as such does not suggest the necessity for solving the problems and the technical means for solving the problems of the claimed invention.

As such the claimed invention would not have been obvious based on this disclosure. Withdrawal of the rejections under 35 U.S.C. 103(a) is respectfully requested.

The rejection of claim 2 under the judicially created doctrine of obviousness-type double patenting over claims 1-2 of U.S. 5,229,457 is respectfully traversed.

Applicants note that neither claim 1 or claim 2 of U.S. '457 claims a vinyl copolymer having a vinyl cyanide content of <30 wt. %. As such, the claimed invention would not have been obvious from either of claim 1 or claim 2 of the patent as the claim limitation of a vinyl cyanide content of <30 wt. % is not disclosed.

Further, applicants note that U.S.P.T.O. records indicate that U.S. '457 is assigned to Monsanto Kasei Company of Tokyo, Japan as recorded at reel/frame 006402/0814, while the above-identified application is assigned to Techno Polymer Co., Ltd recorded at reel/frame 017472/0774. There is insufficient evidence of common ownership to support a rejection of obviousness-type double patenting.

Applicants submit that this application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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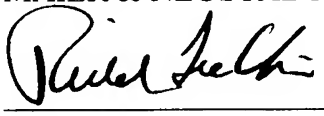

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